THE ASSESMENT OF MATERIAL APPLICATION THROUGH TIMBER TRADITIONAL MALAY HOUSE CONSTRUCTION

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ABSTRACT

In this paper, the construction of the traditional house has been influenced by the iterative adoptions to local conditions such as religion, climate and materials. Within the Peninsular of Malaysia, there exist three distinct regions - northern, central and eastern, in which the traditional differs in styles. In east Malaysia, the traditional houses are different since the communities there lives in one house that shared by more than one family.

However, since the regions are subjected to almost similar local conditions, it is therefore not surprising to find the similarity of shape in most of these houses. This paper attempts to study the material application and construction through timber.

There is much type of timber used in construction of traditional houses and the way it is build is most unique. Most of the material used is readily available local material such as timber, bamboo and many more. The study was conducted in Paloh Hinai, Pahang, Seremban, Negeri Sembilan and Miri Sarawak. And the study was carried out through case study and interviews. Then the data analysis was carried out.

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INTRODUCTION

1.0 Title of the project

The assessment of material application through timber traditional Malayhouse construction

1.2 Introduction

Previously, Malaysian houses are traditional dwellings, originating before the arrival of foreign or modern influences, and constructed by the indigenous ethnic Malay and Orang Asli peoples of the Malay Peninsula and their related Bumiputra tribes of East Malaysia.

Whereas peninsular Malays have single extended-family houses, many of the Borneo people built *rumah panjang* or 'long-houses' hosting many families, each in its own 'apartment' with a common wide veranda linking the front.

Traditional architectural forms, such as tropically-suited roofs and harmonious proportions with decorative elements are considered by traditionalists to still have relevance. However traditional buildings require significant maintenance compared to modern construction. These traditional skills are gradually being lost as Malaysia continues its process of industrialization.

Using renewable natural materials including timber and bamboo, the dwellings are often built without the use of metal including nails. Instead pre-cut holes and grooves are used to fit the timber elements into one another, effectively making it a ‘prefabricated house’. In Sarawak and Sabah rattan ropes were used to fasten bamboo pieces together.

Although nails had been invented and in later houses used minimally for non-structural elements (for example, windows or panels), structural flexibility was a benefit which nailing inhibited. Without nails, a timber house could be dismantled and reconstructed in a new location.

Traditional timber houses incorporated design principals relevant in contemporary architecture such as shading and ventilation, qualities present in the basic house features. A main characteristic of a typical *kampung* house is its on stilts or piles. This was to avoid wild animals and floods, to deter thieves, and for added ventilation. In parts of Sabah, the number of dowry buffaloes could even depend on the number of stilts there are in the bridal family’s home.

A traditional Malay timber house usually in two parts: the main house called *Rumah Ibu* in honour of the mother (*ibu*) and the simpler *Rumah Dapur* or kitchen annex, which was separated from the main house for fire protection. Proportion was important to give the house

a human scale. The *Rumah Ibu* was named after the spacings between stilts which are said to typically follow the arms-spread width of the wife and mother in the family of the house when being built. At least one raised veranda (*serambi*) is attached to the house for seated work or relaxation, or where non-familiar visitors would be entertained, thus preserving the privacy of the interior.

Types of traditional house in Malaysia

Rumah Limas - Predominantly found in Johor, Malacca, Pahang, Terengganu and Selangor.

Figure 1: Rumah Limas [7]

Rumah Melaka - Predominantly found at Johor and Malacca.

Figure 2: Rumah Melaka [8]

Rumah Minangkabau - Predominantly found at Negeri Sembilan.

Figure 3: Rumah Minangkabau

Rumah Bumbung Panjang Selangor - Predominantly found in Selangor.

Figure 4: Rumah Selangor [9]

Rumah Kutai - Predominantly found in Perak and northern Selangor.

Figure 5: Rumah Kutai [10]

Rumah Panjang – Predominantly found in Sarawak

Figure 6: Rumah Panjang at kampong Mamut Sarawak

Rumah Bajau – Predominantly in Sabah

Figure 7: Rumah Bajau[11]

1.3 Problem Statement

Highly Resources Cost

The Malaysian timber industry is heavily export-oriented. This has affected the quality, quantity and cost of timber available for the local market. The export-oriented timber industry has pushed up local timber prices and since most of the high-quality timbers are exported, the local market is deprived of high-quality hardwoods. However, people prefer using modern material to build their kampong house.

Building By-Laws

Restrictive, archaic and stringent building bylaws have deterred the building of timber houses in urban areas. The uniform building bylaws which are based on stringent standards demands a high degree of scientific treatment of the timber. Unless the classified timber used meets these requirements, the house would be classified as a temporary dwelling. Because of this, the majority of engineers in Malaysia have relatively little timber technology know-how. This gap is not likely to be filled, given the present difficulties resulting from restrictive building bylaws.

1.4 Objectives

I. To study the construction of traditional house.

II. To determine the timber materials apply in construction of traditional house.

1.5 Scope of works

I. Seeking the guidelines on traditional houses in Malaysia.

II. Focusing on timber construction and durability of timber for houses.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Malaysia, in aiming towards Vision 2020 as a develop country; still have large numbers of timber traditional houses which scattered in the suburban and rural area throughout the country. Some of them age, perhaps a few decades; and a number of them have reached a century. Become old and ‘antique’ across time, it is indeed requires the evaluation of maintenance, for the purpose of repair and replacement, could be; as to function up to the standard as well as providing safety for the occupants. In addition to that, these traditional houses also have a very significant potential in being gazetted as national heritage. Therefore we have to put an effort in realising this potential, or otherwise it will just be a conservation paradigm.

2.2 The houseform

The traditional Malay house is a timber house raised on stilts. It is basically a post-and-lintel structure with wooden or bamboo walls and a thatched roof.

Figure 8: Traditional house on stilts [12]

Windows are plentiful, lining the walls and providing good ventilation and views for the house. This quality of openness is also reflected by the large open interior spaces with minimal partitions.

Figure 9: Windows for good ventilation

From a distance, the Malay house seems to merge naturally with the environment. The roof, which is large, dominates the low walls and the open stilted bottom of the house. The position of the roofs with different sizes and at different orientations creates an interesting visual form. [1]

Figure 10: Roof at Rumah Minangkabau Negeri Sembilan

Ventilation and solar-control devices, and low thermal capacity building materials are part of the building heritage. House construction is highly systematized, like a modern prefabrication system, but with a much higher degree of flexibility and variation. The house components are made on the ground and later assembled on the building site. A very sophisticated addition system, which allows the house to grow with the needs of the user, is an advantage for the poor because it allows them to invest and build gradually rather than shouldering one huge initial financial burden. [2]

Figure 11: Ventilation at traditional house Negeri Sembilan